

Inventions & Innovation Project Abstract

High Speed/Low Effluent Process for Wet and Dry Mill Corn to Ethanol and Co-Products

Bio-Process Innovation has recently developed a high speed/low effluent fermentation process based on the BPSC-15 yeast, which has the property of forming stable, high strength 'pellets'. Very high cell densities are easily attained with this yeast, which leads to quick and complete fermentations i.e. 11% (v/v) ethanol concentrations can be attained in four to eight hours in either Consecutive Batch Fermentations (CBF) or multi-stage continuous stirred fermenters (MCSF).

Bio-Process Innovation is 1) developing and scaling up processes for both wet mill (BPI's WM-1 process) and dry mill (BPI's DM-2 process) corn to ethanol which to date have been demonstrated only on the lab and small pilot scale on molasses and corn syrup, 2) determining the steady state effects of a high degree of recycle, and 3) modeling the incorporation of energy saving MVR distillation in conjunction with the HS/LE fermentation. Energy savings result from reduced evaporation needs along with a greatly reduced energy usage in distillation.

Both wet and dry mill applications (retro-fit and new) will aid in moving the U.S. from an imported oil economy toward a renewable, energy efficient, and reduced greenhouse gas emission future.



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